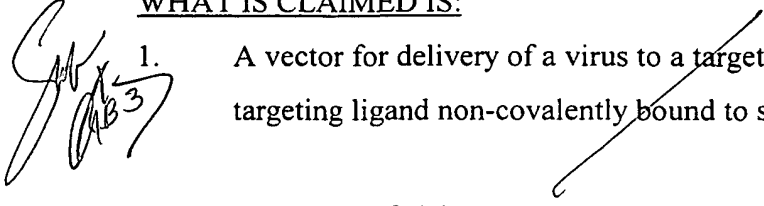


WHAT IS CLAIMED IS:

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1. A vector for delivery of a virus to a target cell within a host animal, comprising a cell-targeting ligand non-covalently bound to said virus.
  2. The vector of claim 1 wherein said virus and said ligand are not naturally associated with each other.
  3. The vector of claim 1 wherein said virus is comprised of a therapeutic nucleic acid.
  4. The vector of claim 1 wherein said virus is comprised of a nucleic acid that encodes a therapeutic peptide or protein.
  5. The vector of claim 1 wherein said virus is comprised of a nucleic acid that encodes wild-type p53.
  6. The vector of claim 1 wherein said virus is a retrovirus or an adenovirus.
  7. The vector of claim 1 wherein said virus is selected from the group consisting of adeno-associated virus, herpes simplex virus, cytomegalovirus, vaccinia virus, fowlpoxvirus, canarypoxvirus and Sindbis virus.
  8. The vector of claim 1 wherein said virus is a chimeric virus, a hybrid virus, or a recombinant virus.
  9. The vector of claim 1 wherein said cell-targeting ligand is selected from the group consisting of proteins, peptides, hormones, antibodies and antibody fragments.
  10. The vector of claim 1 wherein said cell-targeting ligand is a native protein or a recombinant protein.

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11. The vector of claim 1 wherein said cell-targeting ligand is selected from the group consisting of insulin, toxins, EGF, VEGF, FGF, IGF, heregulin, a viral protein, a bacterial protein, estrogen and progesterone.
12. The vector of claim 1 wherein said cell-targeting ligand is transferrin.
13. The vector of claim 1 wherein said cell-targeting ligand and said virus are present at a ratio in the range of 100 to 1,000,000 ligand molecules per virion.
14. The vector of claim 1 wherein said cell-targeting ligand and said virus are present at a ratio in the range of 6,700 to 400,000 ligand molecules per virion.
15. The vector of claim 1 wherein said cell-targeting ligand and said virus are present at a ratio in the range of 1  $\mu$ g to 10 mg of said ligand per  $10^{10}$  virion.
16. The vector of claim 1 wherein said cell-targeting ligand and said virus are present at a ratio in the range of 10  $\mu$ g to 600  $\mu$ g of said ligand per  $10^{10}$  virion.
17. A method for preparing a vector for the systemic delivery of a virus to a target cell, said vector comprising a cell-targeting ligand non-covalently bound to said virus, comprising mixing said cell-targeting ligand with said virus in an aqueous medium, whereby said ligand non-covalently binds to said virus.
18. The method of claim 17 wherein said aqueous solution includes one or more of a buffering agent, an osmolarity adjusting agent, or an antibiotic.
19. A method for providing a therapeutic agent to an animal in need thereof, comprising administering to said animal a therapeutically effective amount of a vector for delivery of a virus to a target cell within said animal, said vector comprising a cell-targeting ligand non-covalently bound to said virus.

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20. The method of claim 19 wherein said animal is a human.
21. The method of claim 19 wherein said therapeutic agent is administered systemically.
22. The method of claim 19 wherein said therapeutic agent is administered parenterally.
23. The method of claim 19 wherein said therapeutic agent is administered intravenously or intra-arterially.
24. The method of claim 19 wherein said therapeutic agent is administered intratumorally.
25. The method of claim 19 wherein said vector encodes wild-type p53.
26. The method of claim 19 wherein said cell-targeting ligand is transferrin.
27. The method of claim 19 wherein said therapeutic agent is administered to an animal receiving chemotherapy in addition to said therapeutic agent.
28. The method of claim 19 wherein said therapeutic agent is administered to an animal receiving radiation treatment in addition to said therapeutic agent.
29. The method of claim 19 wherein said animal has cancer of the head and neck, bladder, breast, thyroid, ovary, brain, prostate, a melanoma or a lymphoma.
30. The method of claim 19 wherein said virus is comprised of a nucleic acid encoding wild-type p53, further wherein said cell-targeting ligand is transferrin, and further whereby said therapeutic agent is administered systemically.
31. The method of claim 30 wherein said therapeutic agent is administered to an animal receiving chemotherapy in addition to said therapeutic agent.
32. The method of claim 30 wherein said therapeutic agent is administered to an animal receiving radiation treatment in addition to said therapeutic agent.
- Sub B6
- Sub B1